

(No Model.)

E. LEIGH & T. TOWNEND.
ELECTRICAL STOPPING DEVICE FOR MOTORS.

No. 342,872.

Patented June 1, 1886.

Fig:1.

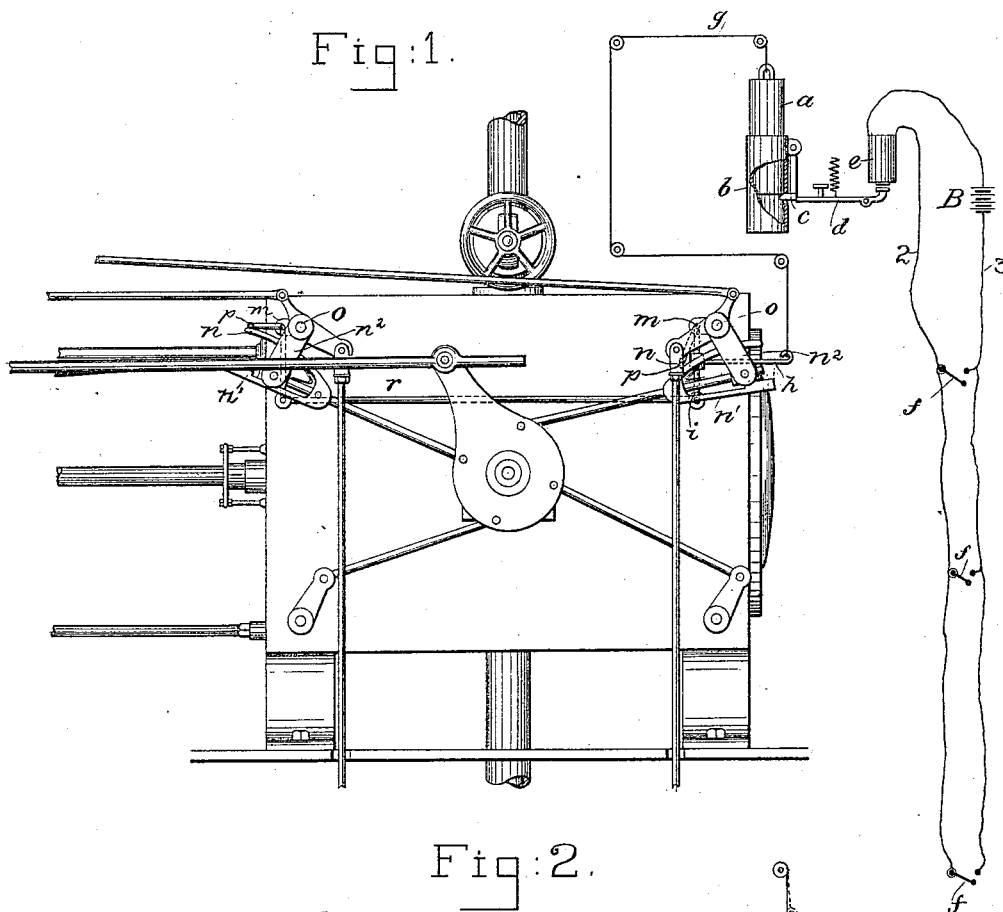


Fig:2.

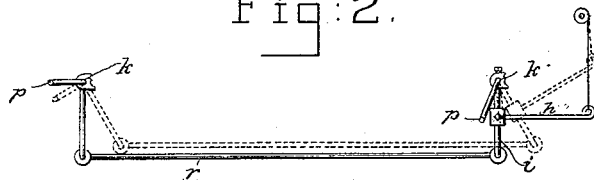
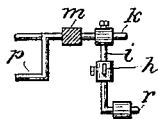


Fig:3.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWIN LEIGH AND THOMAS TOWNEND, OF FALL RIVER, MASSACHUSETTS.

ELECTRICAL STOPPING DEVICE FOR MOTORS.

SPECIFICATION forming part of Letters Patent No. 342,872, dated June 1, 1886.

Application filed January 12, 1885. Serial No. 152,662. (No model.)

To all whom it may concern:

Be it known that we, EDWIN LEIGH and THOMAS TOWNEND, of Fall River, county of Bristol, and State of Massachusetts, have invented an Improvement in Electrical Stopping Devices for Motors, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Our invention relates to a stopping device for motors or engines, to enable persons at a distance from the motor to stop the same without loss of time, as is frequently desirable in mills when an accident has occurred in a room or at some point removed from the motor or engine, such an accident requiring the immediate stopping of the machinery to prevent loss of life or damage to the building or machinery.

The valve or device controlling the application of power to the motor is combined with a stop-actuating device, (shown in this instance as a weight normally retained inoperative by a detent,) controlled by an electro-magnet, the circuit of which is extended to the various points at which it is desired to provide means for stopping the motor, at which points the said circuit is provided with controlling devices, by means of which the condition of the magnet may be changed, and thereby caused to actuate the detent, which then permits the weight or stop-actuating device to operate the valve and cut off the power from the engine or motor.

As shown in this instance, the stopping apparatus is employed in connection with a Corliss engine, and the stopping device acts directly upon the valve-gear controlling the valves which admit the steam to the ends of the engine-cylinder, being arranged in such relation to the said valve-gear that when the stop-actuating device is released by the detent the said valves are prevented from opening and no steam is admitted to the engine-cylinder, so that the engine will stop as soon as its momentum is overcome.

Figure 1 is a diagram representing a motor-stopping apparatus embodying this invention as applied to an engine-cylinder and valve-gear, which are shown in elevation; Fig. 2, a front elevation of the stopping devices, and Fig. 3 an end view thereof.

The stop-actuating device *a* (shown in this instance as a weight movable in a guide, *b*) is normally retained inoperative, while the engine and machinery are in proper running order, by a detent, *c*, pivoted upon the guide *b* and provided with a finger or projection extending through the said guide and engaging and affording a support for the said actuating-weight *a*. The projection of the detent *c* is retained in engagement with the weight *a* by the armature-lever *d* of an electro-magnet, *e*, the circuit 2 3 of which includes a battery, *B*, or other source of electricity, and is extended to the various points from which it may be desired to stop the engine, at which points the said circuit is provided with controlling devices *f*, which may be finger-keys or switches for closing the said circuit, (shown in this instance as normally open,) the magnet *e* being demagnetized.

The invention consists in the combination of devices hereinafter particularly set forth and claimed.

When the circuit 2 3 is closed at any one of the points *f*, the magnet *e* is energized, and in attracting its armature releases the detent *c*, which is then pressed aside by the weight *a*, which will fall to the lower end of the guide *b*. The said weight *a* in thus falling will operate to close the valve or device by which power is admitted to the engine, it being shown in this instance as connected with a flexible cord, wire, or chain, *g*, extended over suitable pulleys connected with an arm, *h*, itself connected with an arm, *i*, secured upon a rod or shaft, *k*, having its bearings in a projection or lug, *m*, secured upon the engine adjacent to the tripping device *n* of the valve-gear which controls the operation of the valves admitting steam to the ends of the cylinder, the stems of which valves are shown at *o*, the valve-gear being of the well-known Corliss type. The shafts *k* are provided with arms *p*, extending over the said tripping devices *n*, and being normally held, when the weight *a* is supported on the detent, inclined to one side, as shown in Figs. 1 and 2, so that they do not interfere with the tripping devices nor produce any effect upon the operation of the engine. When, however, the weight falls, the said arms *p* are moved to a position in which they engage the said tripping devices and prevent the hooks

n' of the valve-gear from engaging the crank or arm *n*², by which the valve is opened, so that no steam will be admitted to the cylinder, and the engine will cease to operate, thus cutting off the steam immediately after the circuit 2 and 3 is closed at any point.

The arms *i* of the stopping devices for the valves at both ends of the engine-cylinder are connected together by a link, *r*, so that both are operated simultaneously by the fall of the actuating-weight *a*.

We claim—

The combination, substantially as shown and described, of the normally-open circuit 2 3, provided with a series of closing devices, *f*, the magnet *e*, and armature *d*, the detent *c*,

pivoted to a case, *b*, and having a finger projecting into said case to support the weight *a* when the circuit is open, and to withdraw its said support so soon as the circuit is closed, and the valve-operating mechanism, substantially as set forth, actuated by said circuit, as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EDWIN LEIGH.
THOMAS TOWNEND.

Witnesses:

JOS. P. LIVERMORE,
W. H. SIGSTON.